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SECURITY INFORMATION

CENTRAL INTELLIGENCE AGENCY

REPORT

CD NO.

50X1-HUM

50X1-HUM

COUNTRY Czechoslovakia

SUBJECT Economic - Industry, metal production

DATE OF INFORMATION 1949

DATE DIST. 25 Jan 1952

NO. OF PAGES 7

50X1-HUM

SUPPLEMENT TO REPORT NO.

THIS IS UNEVALUATED INFORMATION

50X1-HUM

CZECH PRODUCTION OF SCREWS, NUTS, AND BOLTS

The manufacture of screws in Czechoslovakia hit such a slump during 1949 that the government was alarmed. The shortage of screws actually threatened to halt production in light industry.

The manufacture of screws continued without interruption throughout the war. At the end of the war, the machine tools used in their manufacture were in very poor condition. The expulsion of the German specialists meant that the machine tools could not be repaired immediately and that certain machines which had been dismantled could not be reassembled.

For example, in the Vrchoslav (formerly Gehrardt /sic/ & Rahm) Factory near Teplice Sanov, there are only 30 workers, as compared to 600-800 before the war. Here, as elsewhere, the machine tools have been kept in rather poor repair, and the workers who came after the war to replace the Germans proved to be incompetent. The shortage of raw materials, and especially of good ones, has greatly hindered production.

The rejects average 30 percent, as reported at the general annual meeting of the managers of the /screw-making?/ enterprises, held at Velky Osek.

At present, all the screw-making equipment in Czechoslovakia is obsolete, worn out, and incapable of producing good-quality screws in satisfactory numbers.

Czechoslovakia keeps only the poorest of its output. Each factory has a Soviet representative who has the bulk of the production sent directly to the USSR. The management of the factories must take the blame for the inadequate production and poor quality of the product, which interfere with the fulfillment of the Five-Year Plan, especially the plan for the manufacture of automobiles, motorcycles, elevators, woodworking machinery, etc. These industries have been obliged to manufacture their own screws to continue production. This increases the cost of the screws tenfold, as they have to be made with tools not designed for the purpose and which have to be diverted from their own proper task.

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The Ministry of Industry was deeply disturbed and took the following measures:

1. It canceled all orders dated prior to 1 January 1949, including foreign orders. The factories were obliged to reorder and justify the new orders on the basis of absolute necessity. Henceforth, all orders were to be channeled centrally through an agency consisting of two branches: Ferra for ordinary screws, and Helika for special screws. Small orders are grouped there, and all orders are distributed by the agency to the factories. Customers are forbidden to contact the factories. Of course, personal considerations play a large part in the assignment of priorities.

2. It established a system of priorities: Priority I, for special screws for the USSR, to be shipped directly; Priority II, screws for heavy industry; and Priority III, screws for other industries.

3. It made a great effort to have idle machinery repaired, especially 405 machines which had to be overhauled and repaired immediately. These repairs are already under way in the precision-machine section of the CZKS (Czechoslovak Metalworking and Machine Factories). Single and double horizontal lathes [vertical turning mills?] are being repaired by Storek in Brno. Nonautomatic heavy presses and cutters are being repaired by the TOS (machine-tool factory) in Holoubkov. Automatic presses are being repaired by the Kurin TOS (formerly Zdroiovka) in Brno. Light automatic machines and light presses are being repaired by Elektro-Signal in Prague (Holesovice). Automatic precision machinery is assigned to the Zebrak TOS in Celakovice and to Bata TOS in Sezimovo Usti. Small knitting machines are repaired by the TOS in Hostivar. The machines are tried out in place.

4. It undertook a modernization program. Machines belonging to the Spojene Ocelarne (United Steel Mills) in Libcice, near Kralupy, which formerly operated in series are now being converted to operate independently. This factory is responsible for supervising the repairs which are in progress, and it makes periodic reports to the ministry. In practice, it directs all the factories which produce screws for wood and iron, nails, needles, and similar products; i.e., Jarce Vrchoslav in Plzen, Hvezdomcic in Budejovice, Velky Osek in Boskovice, and the largest needle factory (Vockov, near Plzen). The ministry also has begun to purchase machinery of the most modern type abroad, especially in the US. These machines were put into service immediately. When the machines had been in operation long enough for errors in construction to show up, they were withdrawn from service and forwarded to machine-tool factories, which are now studying them with a view to copying them and improving them if possible.

The Five-Year Plan allows 280 million Czechoslovak crowns for the construction of new automatic machines. The single and double automatic lathes for the manufacture of ordinary screws and iron wire receive special attention. They will represent improved copies of American machines long on order from the US.

Engineer Egermayer, director-general of the entire screw industry and former director of the Libcice Plant, is responsible for the purchase of these machines abroad. He will make a trip to England and the US soon to purchase new equipment. He is responsible also for supervising and equipping new enterprises.

The Libcice Plant

The plant is located 800 meters from the Libcice station, on the Prague-Kralupy line, on the left-hand side of the road toward Prague. It has direct rail communications with the station. The factory grounds have an area of 30,000 square meters, not counting the park, and have three types of buildings:

the old part (18,000 square meters), the part built during the war (8,000), and the part begun during the war and finished later (4,000). This last part includes a fully modern workshop, 30 meters by 60 meters.

The plant has its own thermal power plant, which also furnishes some power to the city (except in winter, the peak season). The power plant has a turbogenerator and a boiler installation which was modernized during the war and is in very good condition. In case of a breakdown, the plant is also connected with the Prague power plant.

The director is Engineer Cerny, a militant Communist, capable, and a good technician. He became its director during the war. Immediately afterwards, he was appointed manager of the Gebrardt & Rahm Plant in Vrchoslav. In 1946, Cerny was recalled to Libcice and appointed general director of all screw production, in place of Egermayer.

On the whole, the morale of the 1,100 workers is believed not to be good. Absenteeism is understood to be high, and the output could probably be increased by 15-20 percent.

The plant produces ordinary 3- to 30-millimeter (M3 to M30) screws, and larger ones on special order; M3 to M30 nuts; special screws for very heavy machinery, especially for railroads; screw-threaded shanks of all dimensions; rivets from 1.5 millimeters in diameter to the largest used for bridges; nails of all sizes; iron wire from 0.5 millimeter to 5 millimeters in diameter; steel wire and bars of from 3 to 30 millimeters (round or square); and galvanized iron wire.

The plant does not produce polished wood screws. It produces four carloads of screws, nails, and rivets daily; the Five-Year Plan calls for five carloads daily.

The most important shops are the ones which produce screws for the metallurgical industry, rivets, and nails. The drawing mill is rather old-fashioned and unimportant and fills only minor orders.

Production Methods

1. Screws

Ordinary screws of up to 10 millimeters are made by the cold process. Attempts have been made to manufacture No 12 screws of more than 12 threads by the cold process, using a new machine from the German Kaiser of Hilgeland [sic] Plant. However, as the raw material was unsatisfactory, the heads of the screws split, so that the first attempts were unsuccessful.

By the time a proper supply of raw material had been obtained, another machine had been installed. Production now is continuous on three shifts.

This process was necessitated by the universal shortage of No 12 screws in Czechoslovak industry. Thus far, No 12 screws have been manufactured by the cold process, which takes five times as long [as the hot process?]. By the cold process, the heating in gas furnaces, the making of the heads, and the cutting of the threads must be done separately. All screws larger than No 12 are made by this process.

The Libcice Plant has 50 presses and single and double lathes of various dimensions, build by Kaiser. They operate in series, with a belt. During the war, six new and more up-to-date machines were put into service. For 12-millimeter and smaller screws, drawing and blunting are done automatically. For larger screws, this is done by hand.

The plant has 30 screw-cutting machines made by Kaiser. The threads are cut automatically on screws of up to 16 millimeters. Hand processing requires three times as much time on the average as automatic processing.

2. Nuts

Nuts of up to 8 millimeters are made by the cold process. There are 20 horizontal presses for making larger nuts. Depending on the size, they can make three to six nuts at once from one plate of steel. Nuts of up to 10 millimeters are made automatically by horizontal presses, while larger ones are made by hand with vertical presses. All the presses, horizontal and vertical, make the holes in one operation.

The plant has 30 lathes, ten of which are fully modern, and several special machines for making special nuts of various dimensions.

Interesting experiments are being made toward making the heads, screw-cutting, and blunting simultaneously by the cold process. They have not been successful because of the quality of the raw material, which produces cracks in the heads.

Attempts are being made, in hot processing, to eliminate the furnaces and heat the metal by passing an electric current through it, preferably while it is in the press. This would mean a substantial saving of time. The results of these tests have not yet been established.

Zatec

Zatec, formerly Fischer & Fils, is a subsidiary of the Libcice Plant. Before the war, it was an important factory, with 450 workers on the payroll and a daily production of 15 carloads. After the expulsion of the Germans, the labor force was reduced to 280.

In December 1947, a fire destroyed 500 machines. The factory had to be rebuilt and reequipped. Most of the present buildings are built of reinforced concrete.

The factory dispatches and receives shipments of goods through the Zatec railroad station, which is 100 meters away. Its principal products are flat-headed and round-headed wood screws up to 12 centimeters long, as well as metal screws and nuts up to 6 millimeters in diameter. The production of the latter began in 1948, but is to end very soon, as the plan calls for the production in the factory of wood screws only.

The factory produces about seven carloads a day. Its entire output is reserved for export.

The factory has its own power plant. The machines operate without [illegible] belts. The factory has the following equipment: 30 [?; first digit illegible] single and double presses, 300 automatic presses for the simultaneous production of heads and slots (these presses operate in series of ten, according to the type and dimension of the screw), and 500 automatic lathes with their own cooling system.

Almost all the machines are old Kaisers. There are a few more modern machines of Swiss and Belgian manufacture. Ten new special machines for making wood screws and two Hilgeland-Rhonsdorf lathes have just arrived from Switzerland.

The director is Engineer Tehnik. There are 250 workers, of whom 70 percent are unskilled women. Each worker operates an average of 13 lathes as compared with a normal figure of 17 [elsewhere]. The enterprise is poorly run.

Vrchoslav

The Vrchoslav Enterprise, formerly Gehrardt & Rahm, near Teplice Sanov, consists of two parts. The old part consists of wooden buildings with an area of 5,000 square meters. Its machinery is very old, and it produces pressed items of crude workmanship. It consists of a rolling mill and a drawing mill. The other part was finished during the war. It consists of two-story reinforced-concrete buildings. Its equipment is fully modern.

The factory makes various kinds of screws of from 3 to 35 millimeters, nuts, and screws made of red and yellow copper and brass. An average of one and one-half carloads of goods are produced daily, although the rate fluctuates greatly because of frequent shortages of nonferrous metals, other raw materials, and skilled labor. Waste runs about 15 percent for the same reasons. The enterprise has no power plant of its own but operates on steam.

The equipment consists of Pittler heavy automatic lathes for making screws and nuts, Volmann turret lathes, Index and Skoda automatic machines, four to six Italian-made automatic machines, and Pee-Wee special machines for making copper and brass screws.

Drawing and blunting are done by obsolete methods and with old equipment. The ends of the screws are still heated on portable forges, as was done 30 years ago. The tools are repaired rather poorly at the plant by a few specialists. Two electric furnaces are available to the repairmen.

The director is Engineer Soukup; the shop foreman is named Lupac. The plant employs an average of 280 workers of whom scarcely 30 are skilled. The factory operates on two shifts when there are enough workers and raw materials.

Plzen

The Plzen Enterprise, formerly Eisner, is located on the right side of the road from the Plzen to Prague, 1,200 meters from the Gambrinus Brewery. It produces wood screws of up to 6 millimeters, metal screws of up to 12 millimeters, and all kinds of small special screws.

The factory has no power plant of its own; it receives its current from the Western Electricity Enterprise. However, it has a steam engine for use in case of breakdowns and for its own heating.

It has a small shop for repairs and sharpening and makes its own spare parts. It is a well-run factory, its costs are generally low, and it is run like a small artisan workshop. Its equipment is old, consisting of 400 automatic machines, including single presses.

Eisner, the prewar director, has stayed on. There are 120 workers who work on one shift except in the roughing section which sometimes operates on two shifts.

Velky Osek

The Velky Osek Enterprise, formerly Konivka, is situated between Podebrady and Kocin. It is probably the worst [screw?] factory in Czechoslovakia. The buildings are in fairly good condition, but the equipment is miserable.

Because of its ridiculously low production, the directorate of screw factories has just decided to eliminate its screw production gradually and to convert the enterprise to military production. Buckles, rings, screw rings, and other small items for the army are made there. These products have been made in several factories but henceforth will come from Velky Osek exclusively.

At present, the factory produces wood screws of up to 6 millimeters and 12 centimeters long. Average production is five [or possibly three or eight; illegible] per minute. The factory is powered by steam. However, a transformer built during the war makes the use of electricity possible.

The equipment consists of 160 automatic machines and 30 single presses. The automatic machines are 30 years old and of Italian manufacture.

The presses are Kaisers. They are very worn and their output is crude, with a high percentage of rejects. All the machines and presses are in need of repair.

Almost all the lathes were designed by the prewar owner and built by Volmann in Celakovice, near Prague.

The factory has five benches for the manufacture of wire and one repair shop. There are 160 workers and their morale is very low.

Ceske Budejovice

The Ceske Budejovice Factory is 5 kilometers from the city of the same name. It is some distance from the railroad and has no connection with it. This factory also is substandard. Its wooden buildings are old and sometimes without floors.

The directorate of factories has decided to produce nothing here except door screws, wing nuts, and wheelwrights' screws. This decision is in accordance with the general reorganization under which the Libcice Plant will be the only one able to produce metal screws.

The equipment is very old. The factory is not connected to a source of electricity. After the war the new machines which were intended to modernize the installation, although they could have operated automatically, had to be converted to run in series with a belt.

The installation of the machines is entirely random. There is little space, and the machines are not arranged in proper order.

The methods are obsolete. Thus, large screws are hot-pressed. Heating takes place in [sic] coke furnaces, which means considerable waste of time. There is a small and poorly equipped repair shop.

The factory has a total of 180 heterogeneous machines, all in need of repair, but there is not a single technician for the purpose. Some of the machines are out of service.

There are 90 workers, working on one shift. The management has great difficulty with the labor force, as the workers refuse to operate more than two machines Consequently, costs are high and output very low. A majority of the workers voted against affiliation with the Central Trade-Union Council.

The supply of manual laborers is particularly short. Skilled workers are hired to unload coal, load goods, and clean.

Hvezdonice

The Hvezdonice Factory (formerly Marek & Lasansky) near Benesov is located on the Sazava River. It operates on electricity from two hydroelectric turbines and is connected with the electric network. The buildings are two-story structures, except for the warehouse, and are in good condition. They cover an area of 3,000 square meters. This is the best screw factory in Czechoslovakia. Production is good, and the number of rejects is negligible.

The principal product is wood screws. The factory also makes metal screws of up to 18 millimeters. It has a drawing mill and a zinc works. It also manufactures iron wire, hop-sifters for use in breweries, special nuts, and rings.

Its equipment consists of 400 automatic lathes for wood screws of all dimensions (mostly from Kaiser in Vogelsang, plus a few Swiss, ten of them imported recently), 200 automatic machines for making sifters, 30 presses of various dimensions, operating in groups, and eight vertical presses for the manufacture of special nuts and rings.

The well-equipped repair shop has two special Swiss machines, three horizontal milling machines, and three vertical ones. Dies and the like are made at the factory.

Certain major repairs on machines are done by Elektro-Signal in Prague.

The drawing mill has an electric furnace. One special furnace is used for making sifters. The machines for making screws operate in series of ten and have their own individual cooling systems.

The prewar directors, the two Marek brothers and M. Lasansky, have remained in their jobs. Jaroslav Marek is the inspector and technical adviser for the manufacture of all the wood screws. He is a valuable person; he has lived abroad a good deal, especially in Switzerland and Germany. His brother handles administration, and Lasansky handles the technical operations. Most of the labor force (280 workers on one shift) have been with the factory a long time and are skilled workers.

Vochov

The Vochov Enterprise, near Plzen, is 8 kilometers from the city [Vochov?] and 500 meters to the right of the road from Plzen to Karlovy Vary. The buildings are in good condition and well kept up.

The factory obtains its power from the electric network. The machinery is old and operates by belt.

The chief products of the factory are phonograph needles, knitting needles, and special needles for the medical profession. It also makes bed springs.

The factory now produces monthly 200,000 special nails for combing wool. It is the only producer of these nails in Czechoslovakia. The Czechoslovak textile industry needs monthly 800,000 to one million special bent nails of various types for combing wool. Previously, they have been purchased in Switzerland and Germany at high prices because of the special machinery required. The factory has three old-model sharpeners and 12 electric furnaces for making this product. They are operating at full capacity; 200,000 nails per month is all that they can produce. Although the Minister of Finances has refused further credits for the purchase of such nails abroad, production cannot be increased at Vochov.

The factory employs 160 workers on one shift.

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